

Remarks

Reconsideration and reversal of the rejections expressed in the Office Action of October 11, 2005 are respectfully contended in view of the following remarks and the application as amended. The present invention relates to a method for removing etching assist gas from a fabrication system used during defect repair of a photomask in the fabrication of an integrated circuit, comprising: (a) inspecting the photomask and detecting a defect, said defect in a defect region; and (b) repairing said defect, wherein an amount, effective for the purpose of styrene is added to the system. By the method of the present invention, the amount of gas remaining on the Mosi film is reduced, resulting in less surface damage present on the photomask.

Claims 1-15 were rejected under 35 U.S.C. §112, first paragraph. Applicants respectfully contend that the specification is enabling for the invention as claimed; for instance, note paragraph 12 of Applicants' specification, where it is stated that while both a bromine purge and styrene purge were carried out; results demonstrated that the CD variation was markedly reduced through the use of the styrene purge, in this case 0.8 torr for 10 seconds. The term "styrene purge" is readily understood to one of ordinary skill in the art to be a purging gas to control the surface reaction by quenching the reactive gas in the system, as pointed out by the Examiner.

Claims 1, 6 and 11 were rejected under 35 U.S.C. §112, second paragraph. The claims have been clarified as noted above. Support for such clarifications are found at, e.g., paragraph 10 of the specification as filed. Therefore, this rejection is overcome.

Claims 1-15 were rejected under 35 U.S.C. §102(b) as being anticipated by Chiu, U.S. Patent No. 6,391,904. Chiu relates to a method for repairing shifter layer defects in a phase shifting mask. A two step process is used to form an equivalent shifter layer with about the same light transmittance and phase angle shift as an original, non-defective shifter layer. The first step is to etch the quartz substrate in a focus ion beam repair machine, using XeF_2 gas, to cause a leading phase angle shift. The second step is to deposit an equivalent shifter layer in-situ in the focus ion beam repair machine, using a carbon based gas. When the equivalent shifter layer has about the same transmittance as the original shifter layer (e.g. 6%), the phase angle is lagging less than 180 degrees. The leading phase angle shift caused by etching the quartz substrate and

the lagging phase angle caused by the equivalent shifter layer combine to produce a phase angle 180 degrees leading. Note that the removal of opaque defects is neither disclosed nor contemplated by this reference, and independent claims 1, 6 and 11 have been amended to include such a clarification. Therefore, this rejection is overcome.

For all of the above reasons, it is respectfully contended that the solicited claims define patentable subject matter. Reconsideration and reversal of the rejections expressed in the Office Action of October 11, 2005 are respectfully submitted. The Examiner is invited to call the undersigned if any questions arise during the course of reconsideration of this matter.

Respectfully submitted,

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